

they are so arranged that the piping immediately inboard of the valve can be removed without affecting the watertight integrity of the shell connection. Refer also to § 56.20–15(b)(2)(iii) of this part. Large fabricated ballast manifold connecting lines exceeding 8 inches nominal pipe size must be designed for a pressure of not less than 25 pounds per square inch gage.

(d) Disks or disk faces, seats, stems and other wearing parts of valves shall be made of material possessing corrosion and heat-resisting qualities suitable for the service conditions to which they may be subjected.

(e) Plug cocks shall be constructed with satisfactory and positive means of preventing the plug from becoming loosened or removed from the body when the plug is operated. Cocks having plug locking arrangements depending on cotter pins are prohibited.

(f) Cocks shall be marked in a straight line with the body to indicate whether they are open or closed.

(g) Materials forming a portion of the pressure barrier shall comply with the applicable provisions of this part.

[CGFR 68–82, 33 FR 18843, Dec. 18, 1968, as amended by CGD 77–140, 54 FR 40604, Oct. 2, 1989; CGD 95–012, 60 FR 48050, Sept. 18, 1995; USCG–2004–18884, 69 FR 58346, Sept. 30, 2004; USCG–2003–16630, 73 FR 65176, Oct. 31, 2008]

§ 56.20–15 Valves employing resilient material.

(a) A valve in which the closure is accomplished by resilient nonmetallic material instead of a metal to metal seat shall comply with the design, material, construction and testing for valves specified in this part.

(b) Valves employing resilient material shall be divided into three categories, Positive shutoff, Category A, and Category B, and shall be tested and used as follows:

(1) *Positive shutoff valves.* The closed valve must pass less than 10 ml/hr (0.34 fluid oz/hr) of liquid or less than 3 l/hr (0.11 cubic ft/hr) of gas per inch nominal pipe size through the line after removal of all resilient material and testing at full rated pressure. Packing material must be fire resistant. Piping subject to internal head pressure from a tank containing oil must be fitted with positive shutoff valves located at

the tank in accordance with § 56.50–60(d). Otherwise positive shutoff valves may be used in any location in lieu of a required Category A or Category B valve.

(2) *Category A valves.* The closed valve must pass less than the greater of 5 percent of its fully open flow rate or 15 percent divided by the square root of the nominal pipe size (NPS) of its fully open flow rate through the line after complete removal of all resilient seating material and testing at full rated pressure; as represented by the formula: $(15\% / \text{SQRT} \times (\text{NPS}))$ (Fully open flow rate). Category A valves may be used in any location except where positive shutoff valves are required by § 56.50–60(d). Category A valves are required in the following locations:

(i) Valves at vital piping system manifolds;

(ii) Isolation valves in cross-connects between two piping systems, at least one of which is a vital system, where failure of the valve in a fire would prevent the vital system(s) from functioning as designed.

(iii) Valves providing closure for any opening in the shell of the vessel.

(3) *Category B valves.* The closed valve will not provide effective closure of the line or will permit appreciable leakage from the valve after the resilient material is damaged or destroyed. Category B valves are not required to be tested and may be used in any location except where a Category A or positive shutoff valve is required.

(c) If a valve designer elects to use either a calculation or actual fire testing instead of material removal and pressure testing, the calculation must employ ISA–S75.02 (incorporated by reference; see 46 CFR 56.01–2) to determine the flow coefficient (C_v), or the fire testing must be conducted in accordance with API 607 (incorporated by reference; see 46 CFR 56.01–2).

[CGD 95–028, 62 FR 51200, Sept. 30, 1997, as amended by USCG–2003–16630, 73 FR 65176, Oct. 31, 2008]

§ 56.20–20 Valve bypasses.

(a) Sizes of bypasses shall be in accordance with MSS SP–45 (incorporated by reference; see 46 CFR 56.01–2).

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(b) Pipe for bypasses should be at least Schedule 80 seamless, and of a material of the same nominal chemical composition and physical properties as that used for the main line. Lesser thickness may be approved depending on the installation and service conditions.

(c) Bypasses may be integral or attached.

[CGFR 68–82, 33 FR 18843, Dec. 18, 1968, as amended by USCG–2003–16630, 73 FR 65176, Oct. 31, 2008]

Subpart 56.25—Pipe Flanges, Blanks, Flange Facings, Gaskets, and Bolting

§ 56.25–5 Flanges.

Each flange must conform to the design requirements of either the applicable standards of table 56.60–1(b) of this part, or of those of appendix 2 of section VIII of the ASME Boiler and Pressure Vessel Code (incorporated by reference; see 46 CFR 56.01–2). Plate flanges must meet the requirements of § 56.30–10(b)(5) of this part and the material requirements of § 56.60–1(a) of this part. Flanges may be integral or may be attached to pipe by threading, welding, brazing, or other means within the applicable standards specified in table 56.60–1(b) of this part and the requirements of this subpart. For flange facing gasket combinations other than those specified above, calculations must be submitted indicating that the gaskets will not result in a higher bolt loading or flange moment than for the acceptable configurations.

[CGD 77–140, 54 FR 40605, Oct. 2, 1989, as amended by USCG–2002–13058, 67 FR 61278, Sept. 30, 2002; USCG–2003–16630, 73 FR 65176, Oct. 31, 2008]

§ 56.25–7 Blanks.

Each blank must conform to the design requirements of 104.5.3 of ASME B31.1 (incorporated by reference; see 46 CFR 56.01–2).

[USCG–2003–16630, 73 FR 65176, Oct. 31, 2008]

§ 56.25–10 Flange facings.

(a) Flange facings shall be in accordance with the applicable standards listed in table 56.60–1(b) and MSS SP–6 (in-

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corporated by reference; see 46 CFR 56.01–2).

(b) When bolting class 150 standard steel flanges to flat face cast iron flanges, the steel flange must be furnished with a flat face, and bolting must be in accordance with § 56.25–20 of this part. Class 300 raised face steel flanges may be bolted to class 250 raised face cast iron flanges with bolting in accordance with § 56.25–20(b) of this part.

[CGFR 68–82, 33 FR 18843, Dec. 18, 1968, as amended by CGD 77–140, 54 FR 40605, Oct. 2, 1989; USCG–2003–16630, 73 FR 65176, Oct. 31, 2008]

§ 56.25–15 Gaskets (modifies 108.4).

(a) Gaskets shall be made of materials which are not injuriously affected by the fluid or by temperature.

(b) Each gasket must conform to the design requirements of the applicable standards of table 56.60–1(b) of this part.

(c) Only metallic and suitable asbestos-free nonmetallic gaskets may be used on flat or raised face flanges if the expected normal operating pressure exceeds 720 pounds per square inch or the operating temperature exceeds 750 °F.

(d) The use of metal and nonmetallic gaskets is not limited as to pressure provided the gasket materials are suitable for the maximum fluid temperatures.

[CGFR 68–82, 33 FR 18843, Dec. 18, 1968, as amended by CGD 86–035, 54 FR 36316, Sept. 1, 1989; USCG–2003–16630, 73 FR 65176, Oct. 31, 2008]

§ 56.25–20 Bolting.

(a) *General.* (1) Bolts, studs, nuts, and washers must comply with applicable standards and specifications listed in 46 CFR 56.60–1. Unless otherwise specified, bolting must be in accordance with ASME B16.5 (incorporated by reference; see 46 CFR 56.01–2).

(2) Bolts and studs must extend completely through the nuts.

(3) See § 58.30–15(c) of this chapter for exceptions on bolting used in fluid power and control systems.

(b) Carbon steel bolts or bolt studs may be used if expected normal operating pressure does not exceed 300 pounds per square inch gauge and the